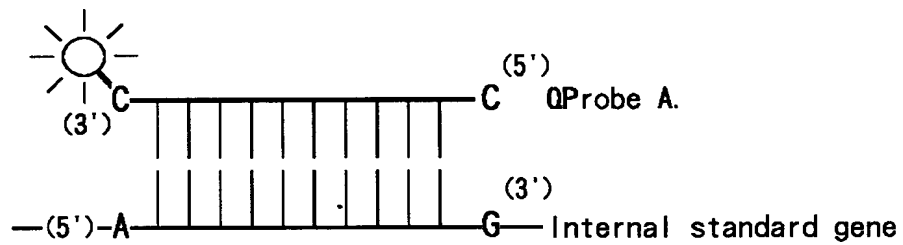
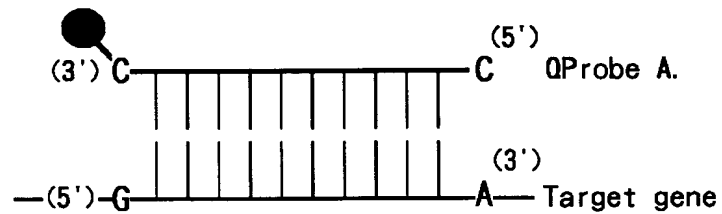
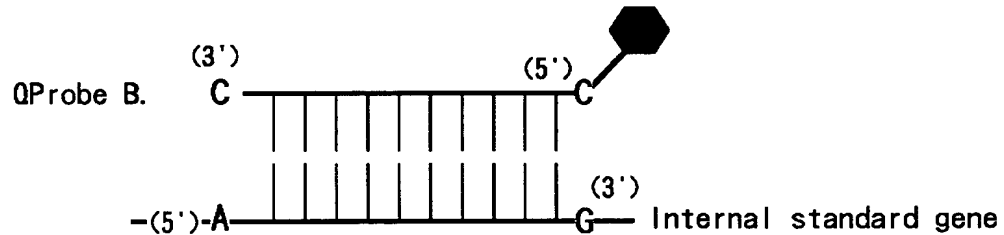
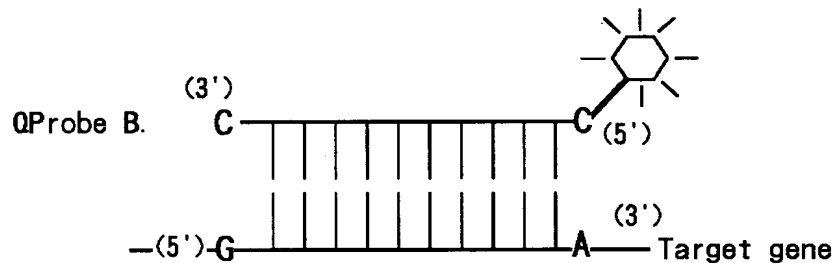


**FIG. 1**

In use of a QProbe for detecting a target gene

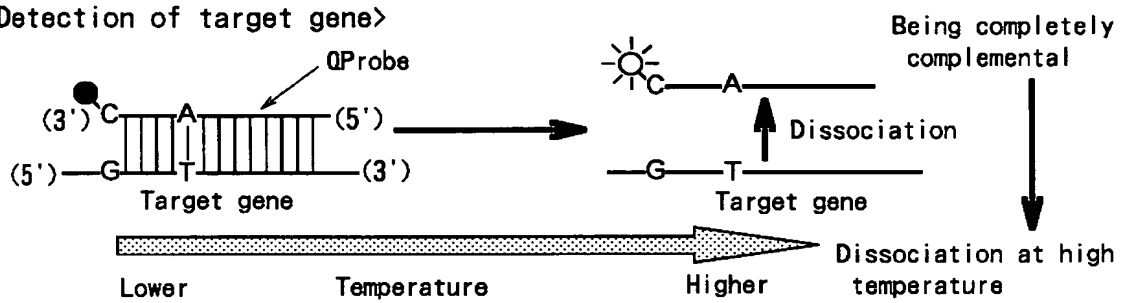


In use of a QProbe for detecting an Internal standard gene

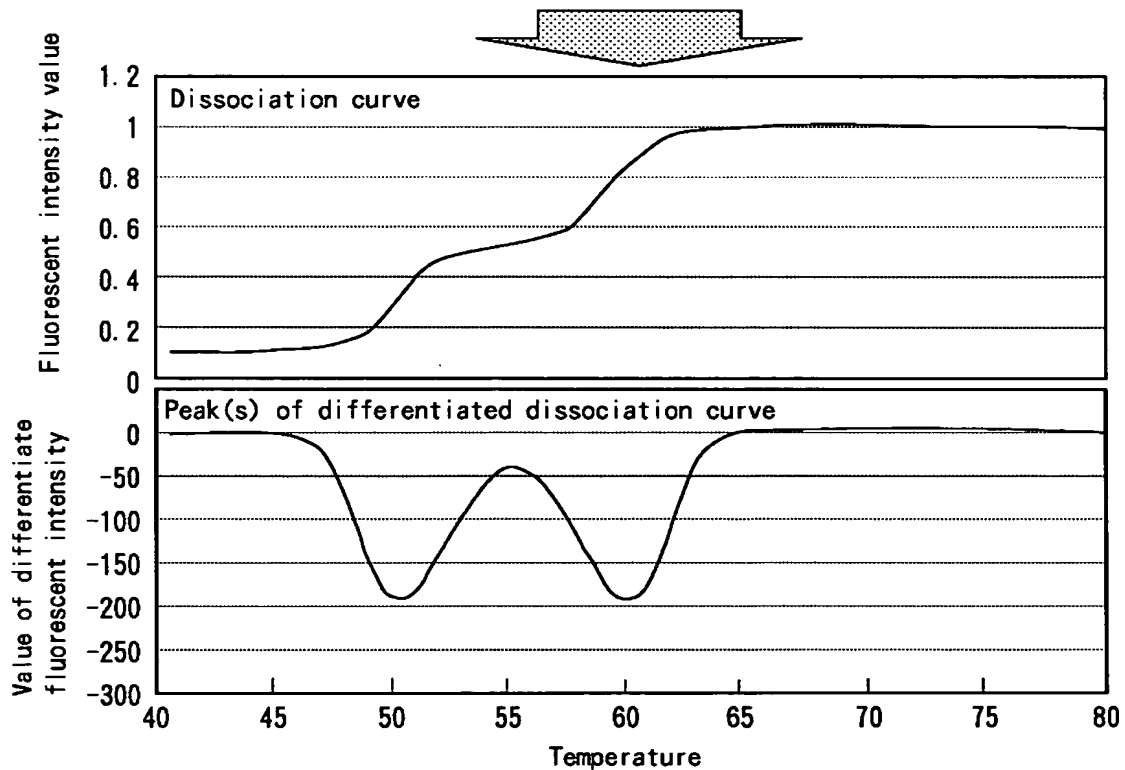
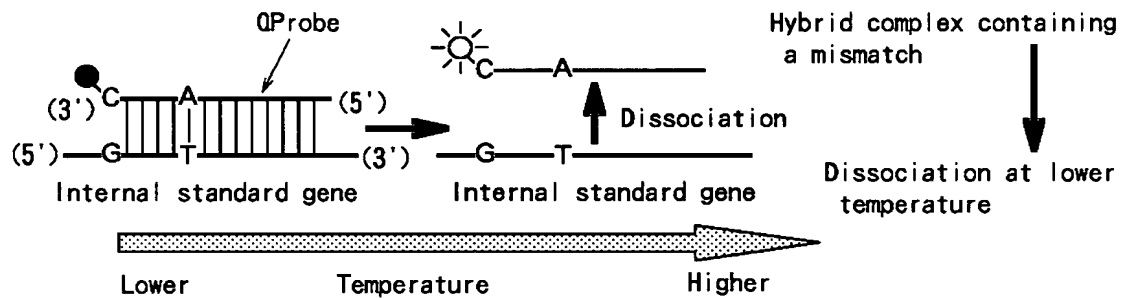


**FIG. 2**

<Detection of target gene>



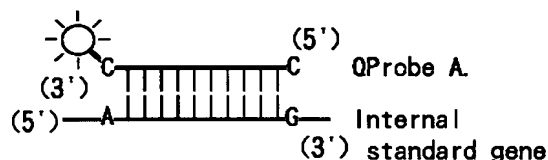
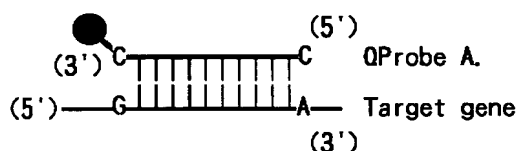
<Detection of internal standard gene>



**FIG. 3**

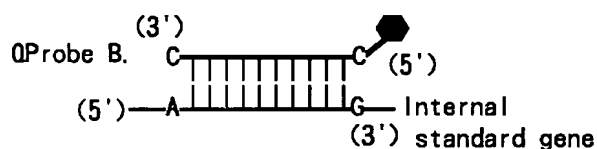
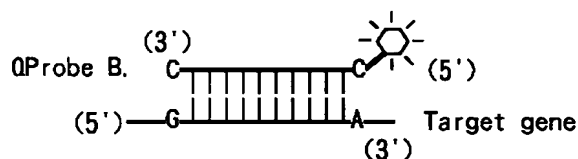
<In use of two QProbes>

In use of a QProbe for detecting a target gene



•Hybridization with an Internal standard gene results in no fluorescence-quenching.

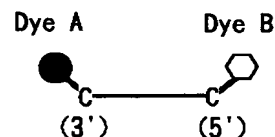
In use of a QProbe for detecting an internal standard gene



•Hybridization with a target gene results in no fluorescence-quenching.

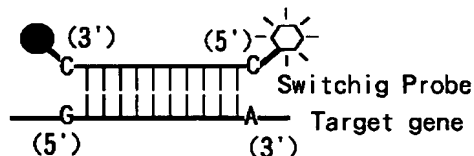
<In use of Switching QProbe>

Structure of Switching Probe

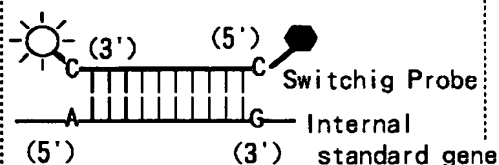


•Both end bases are cytosines  
 •Both ends are labeled with different dyes respectively

In hybridization with a target gene



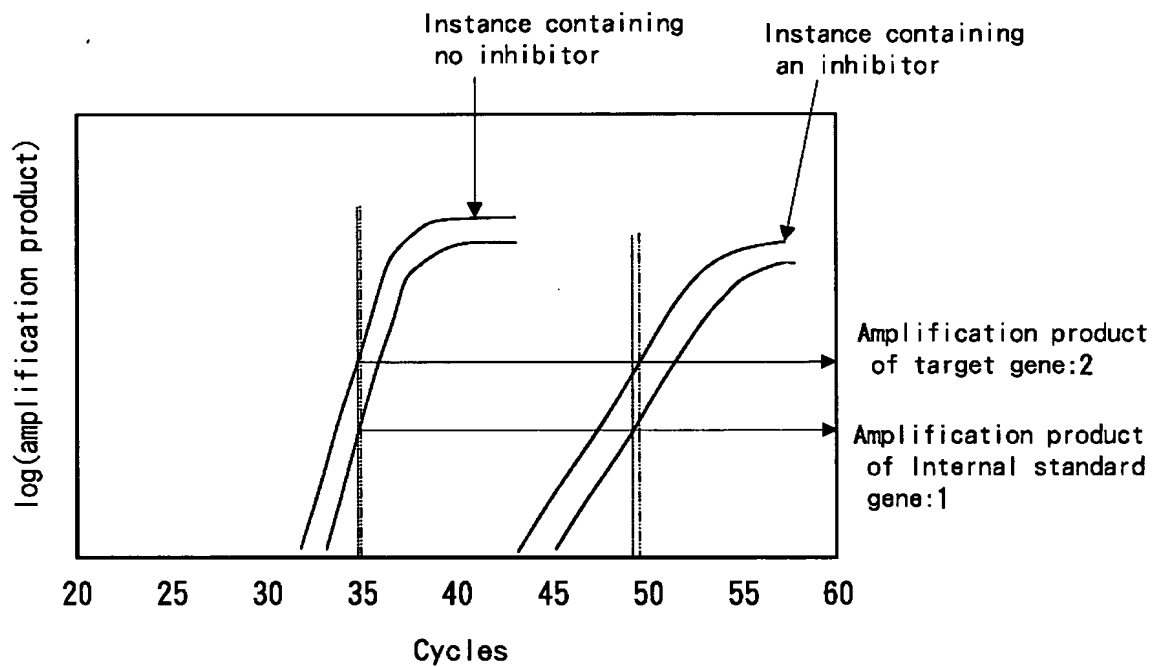
In hybridization with an Internal standard gene



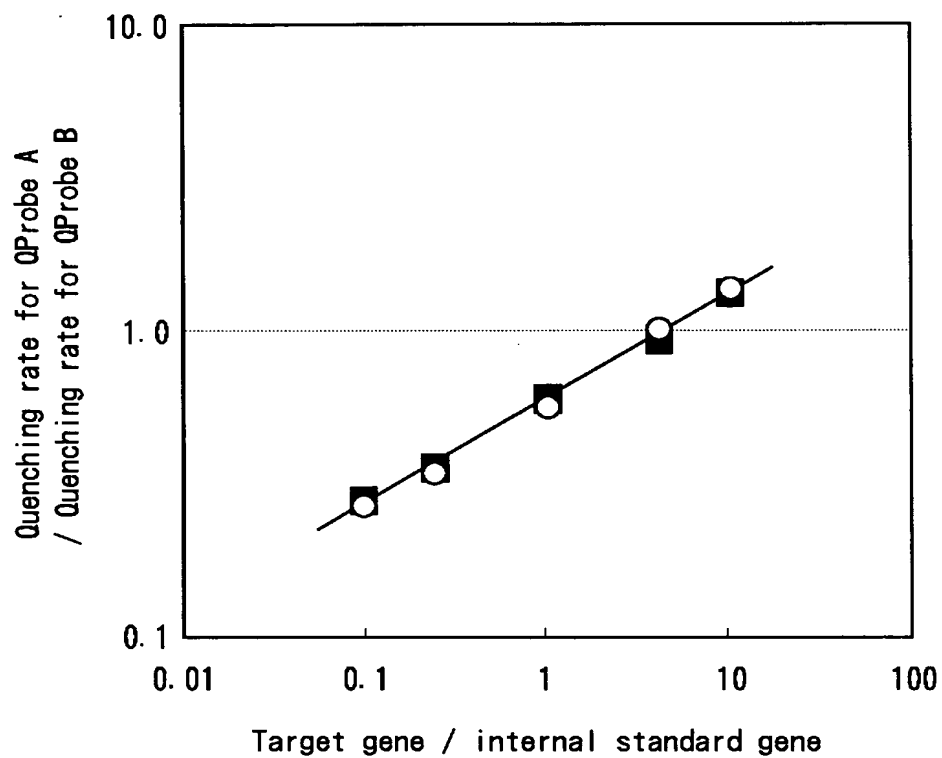
•Hybridization with either of genes results in fluorescence-quenching of dye labeling either of ends.

**FIG. 4**

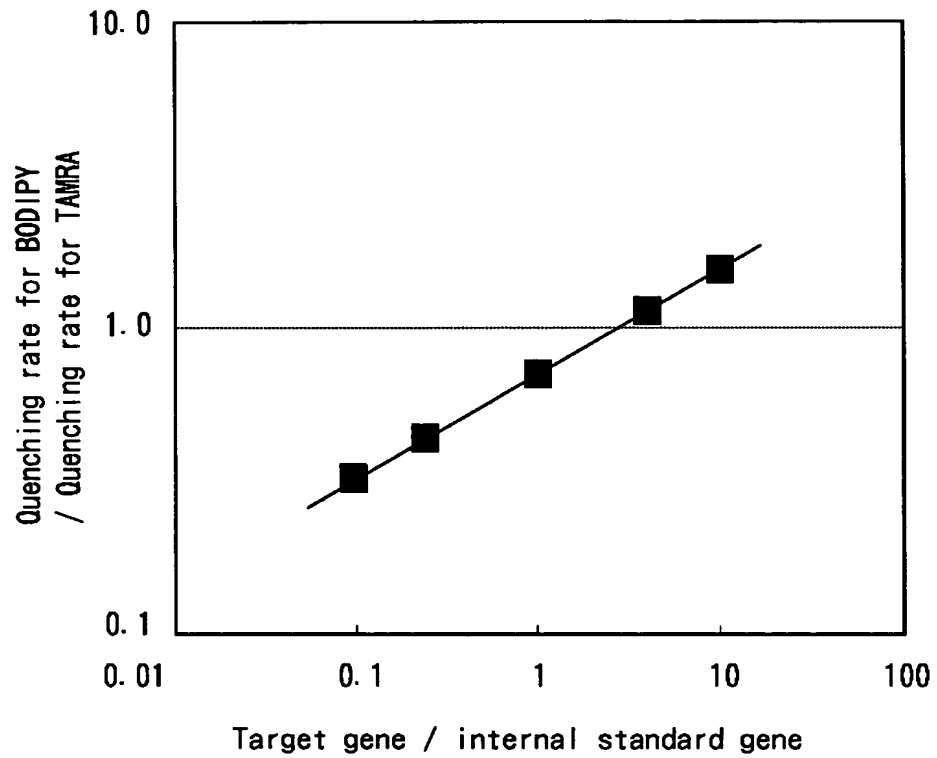
Target gene : Internal standard gene = 2:1



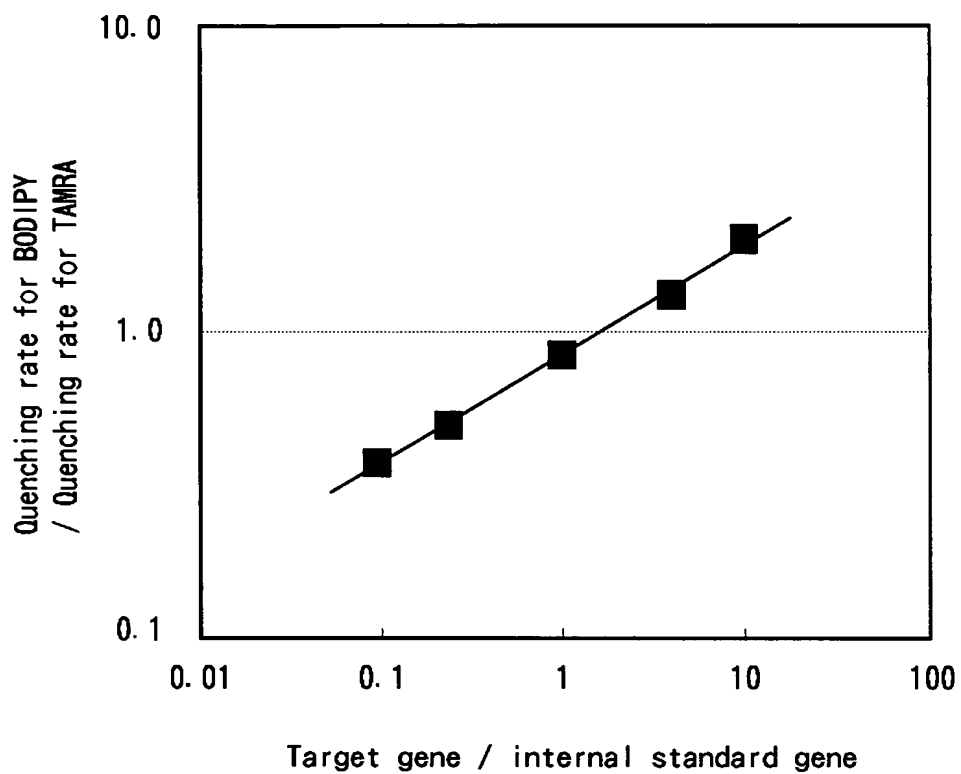
**FIG. 5**



**FIG. 6**



**FIG. 7**



**FIG. 8**

<Experimental procedures>

Cell tube for measuring fluorescence



← Fluorescence-labeling probe

Fluorescent measurement(i)

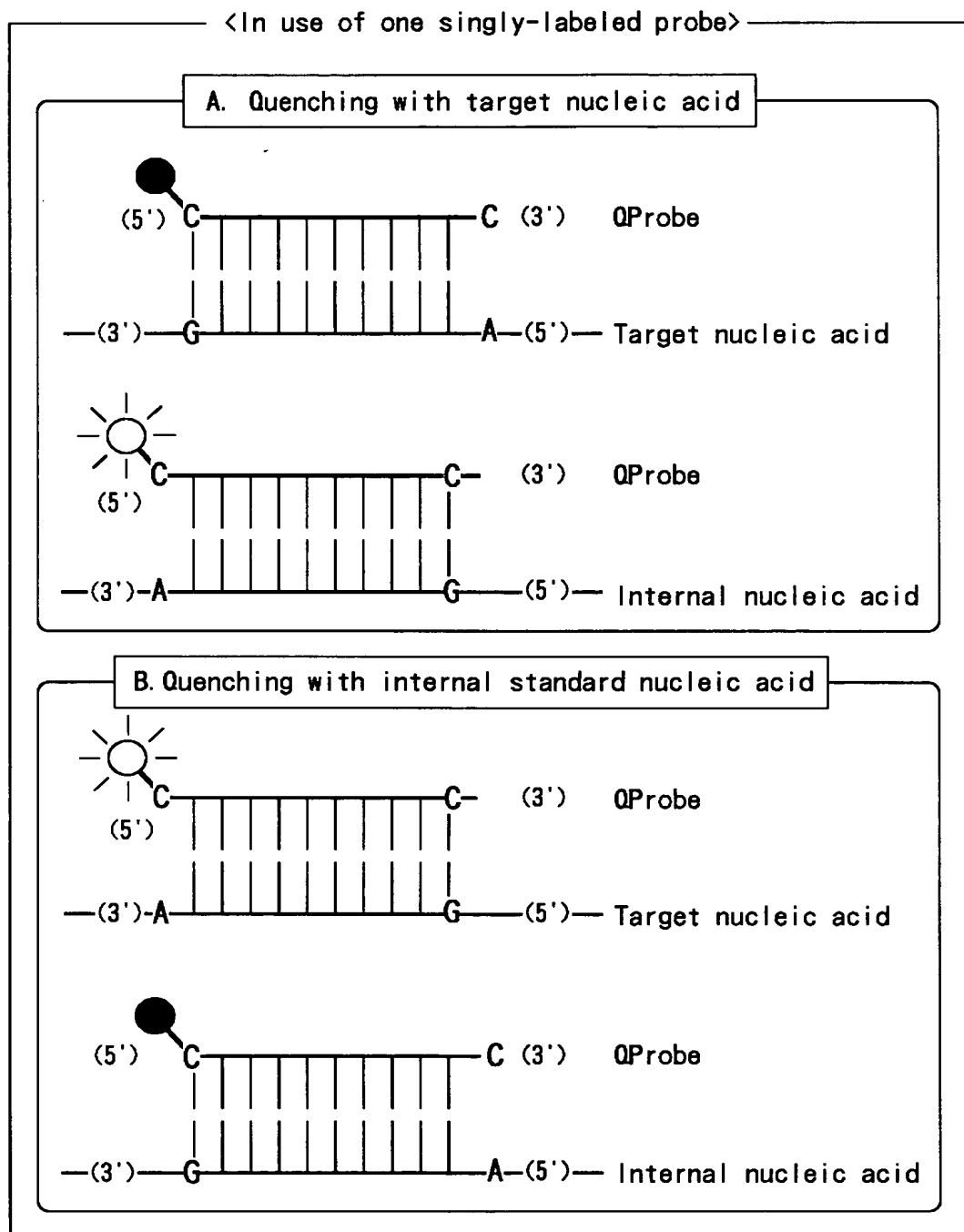


← Target gene

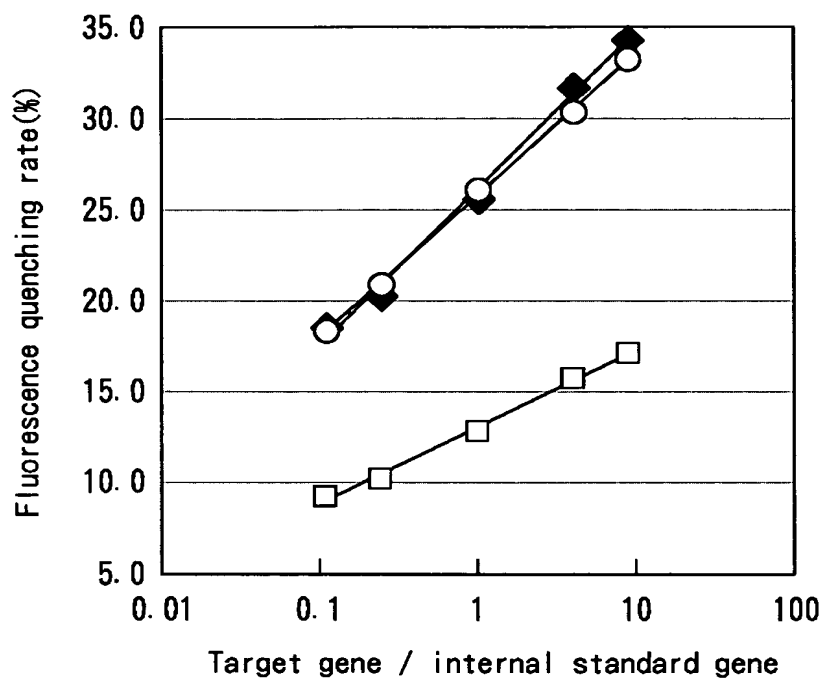
Fluorescent measurement(ii)

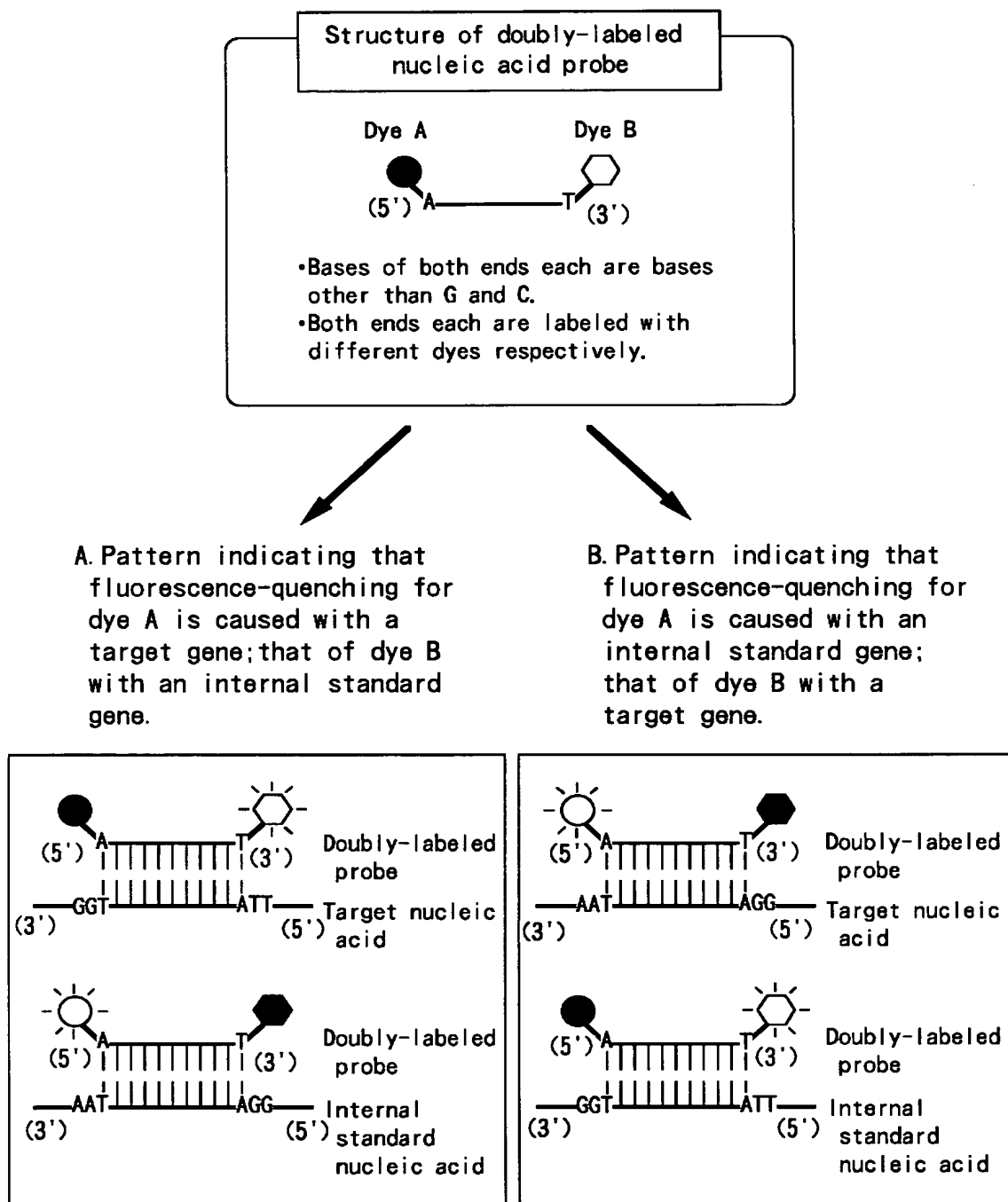


**FIG. 9**

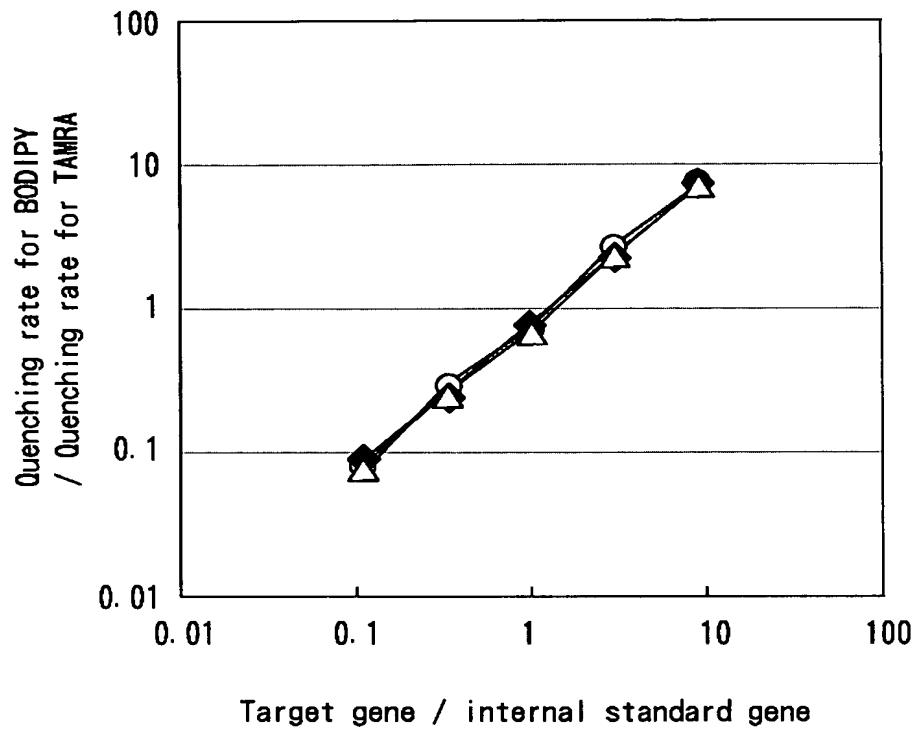


**FIG. 10**

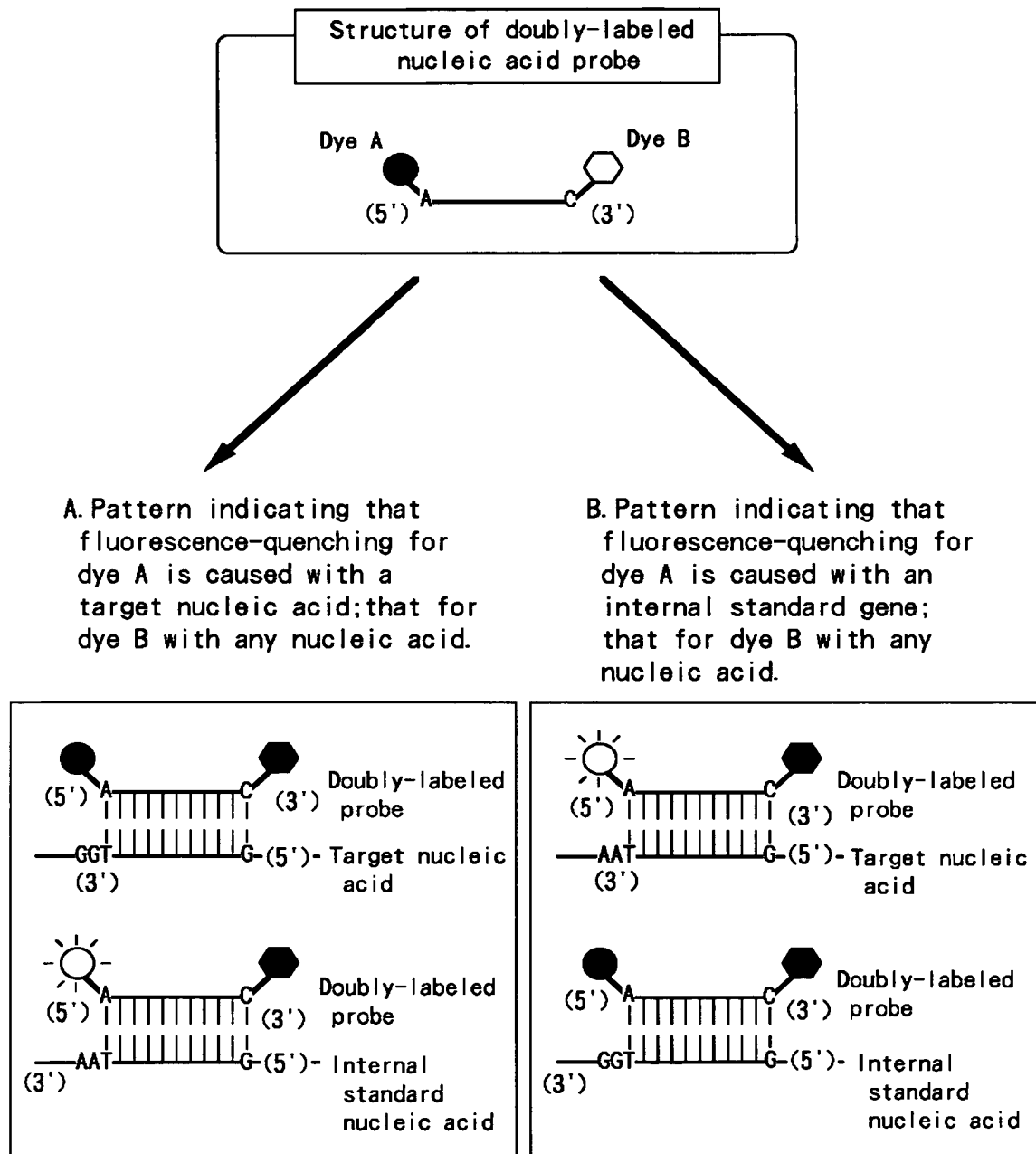




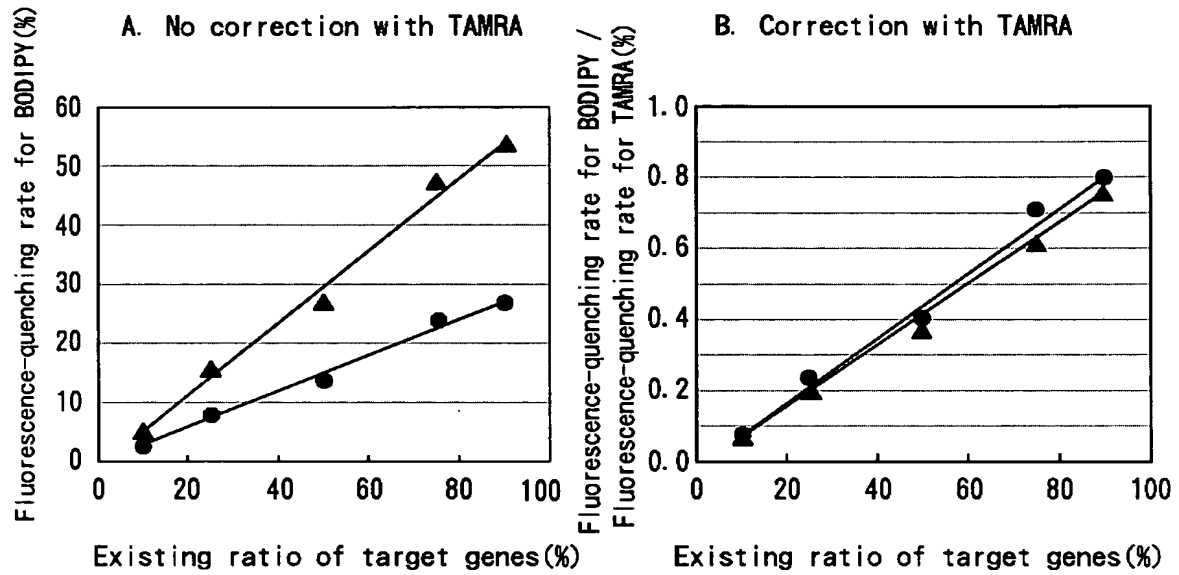
**FIG. 12**



**FIG. 13**



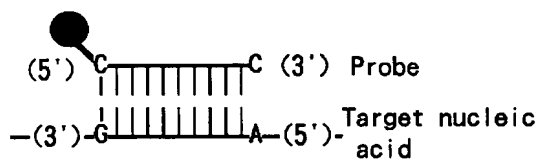
**FIG. 14**



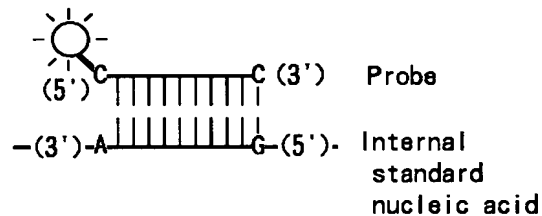
# FIG. 15

## A. Probe having two fluorescent changes

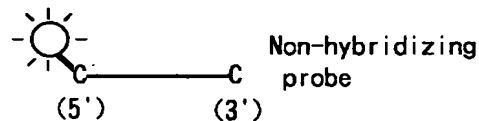
### A. On hybridization with target nucleic acid



### B. On hybridization with Internal standard nucleic acid



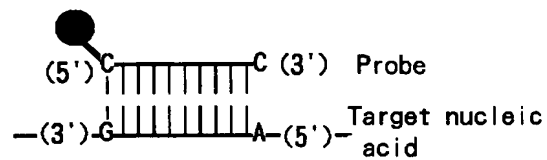
### C. On no hybridization with any nucleic acid



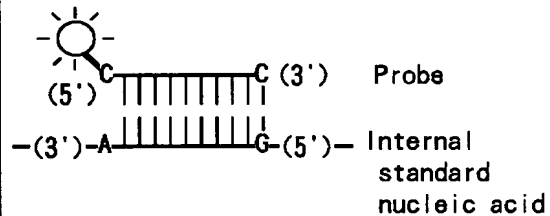
Fluorescent intensity for dye:  
 Internal standard nucleic acid >  
 non-hybridizing probe > target nucleic acid

## B. Probe having three fluorescent changes

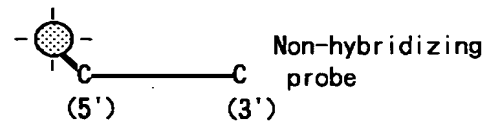
### A. On hybridization with target nucleic acid



### B. On hybridization with Internal standard nucleic acid

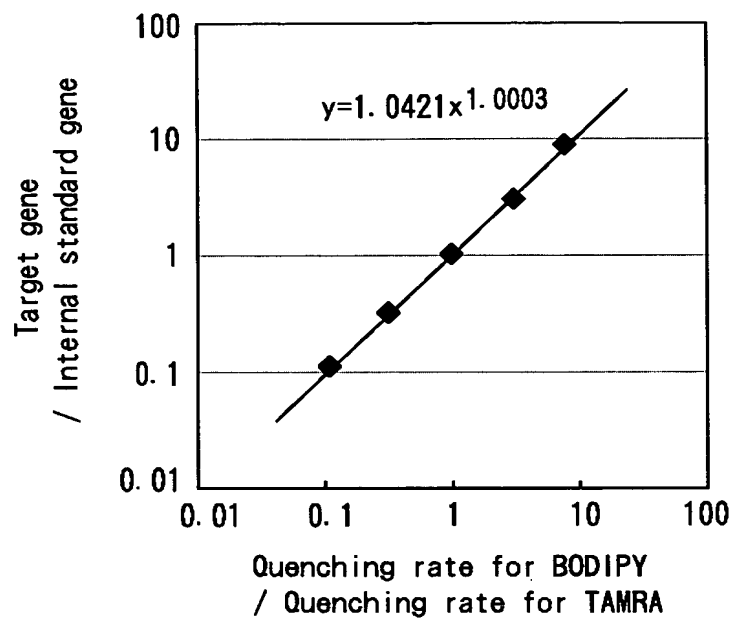


### C. On no hybridization with any nucleic acid



Fluorescent intensity for dye:  
 Internal standard nucleic acid >  
 non-hybridizing probe > target nucleic acid

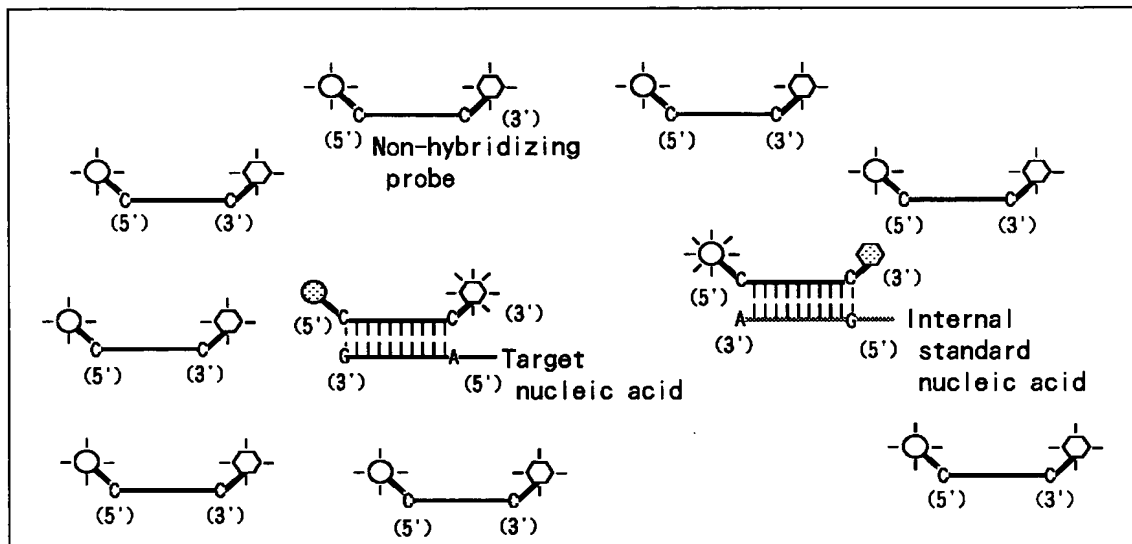
**FIG. 16**



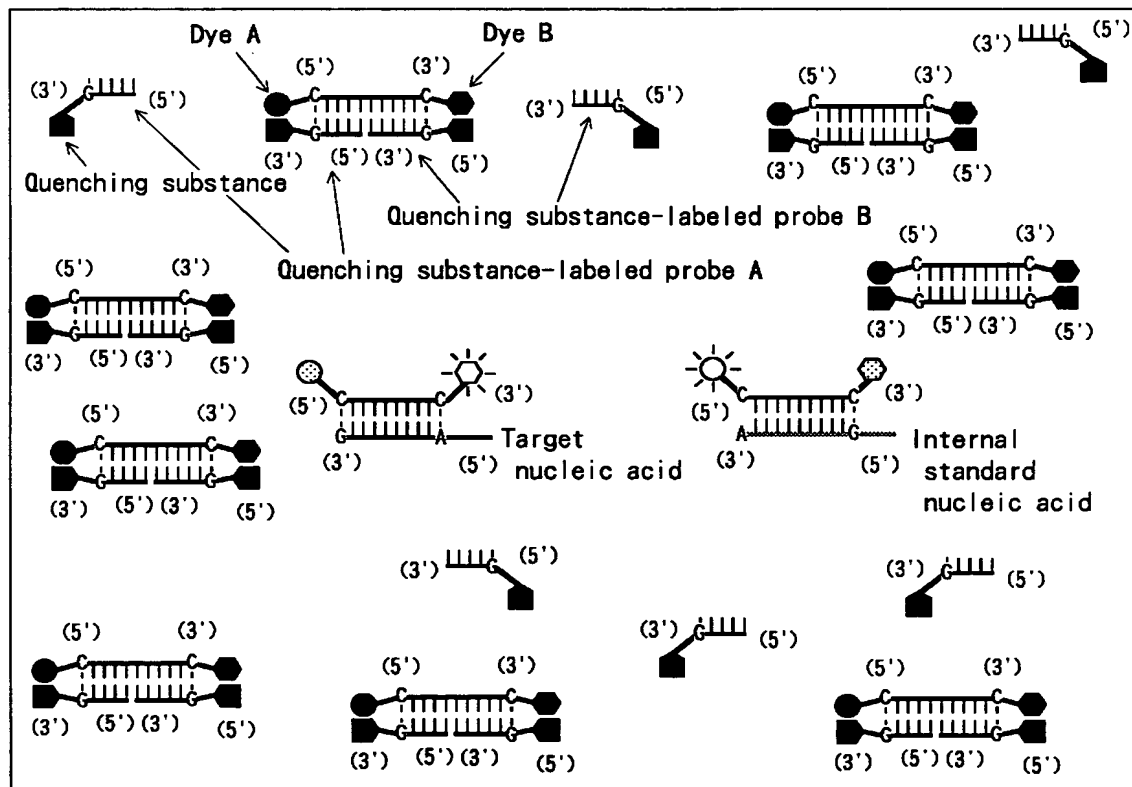


# **FIG. 17**

## **A. In no presence of fluorescent substance-labeled nucleic acid probe**

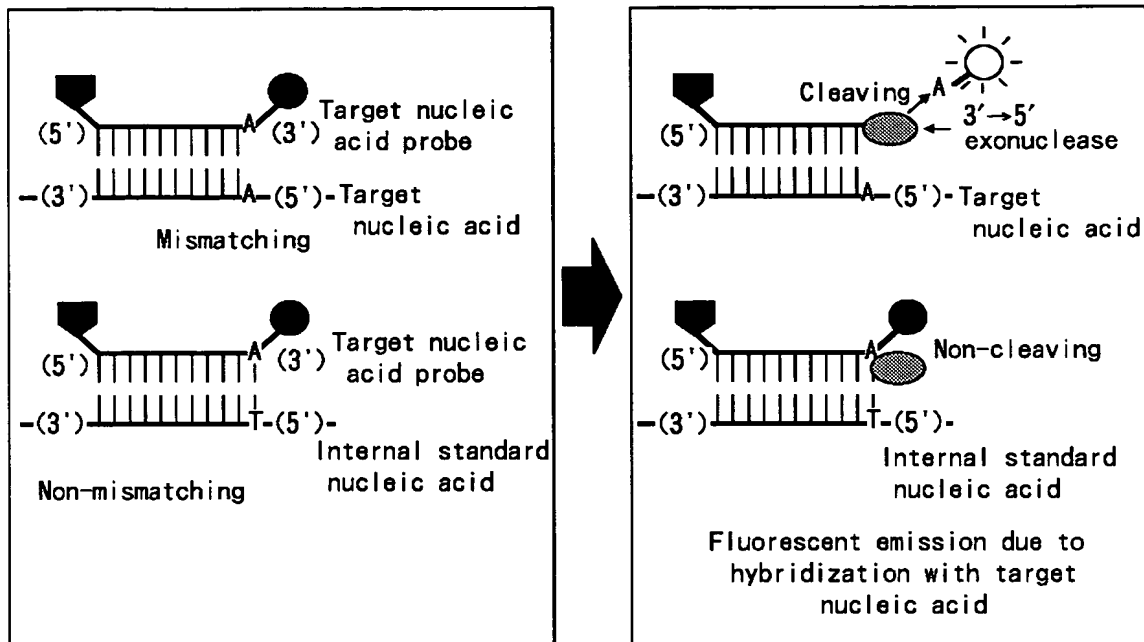


## **B. In presence of fluorescent substance-labeled nucleic acid probe**

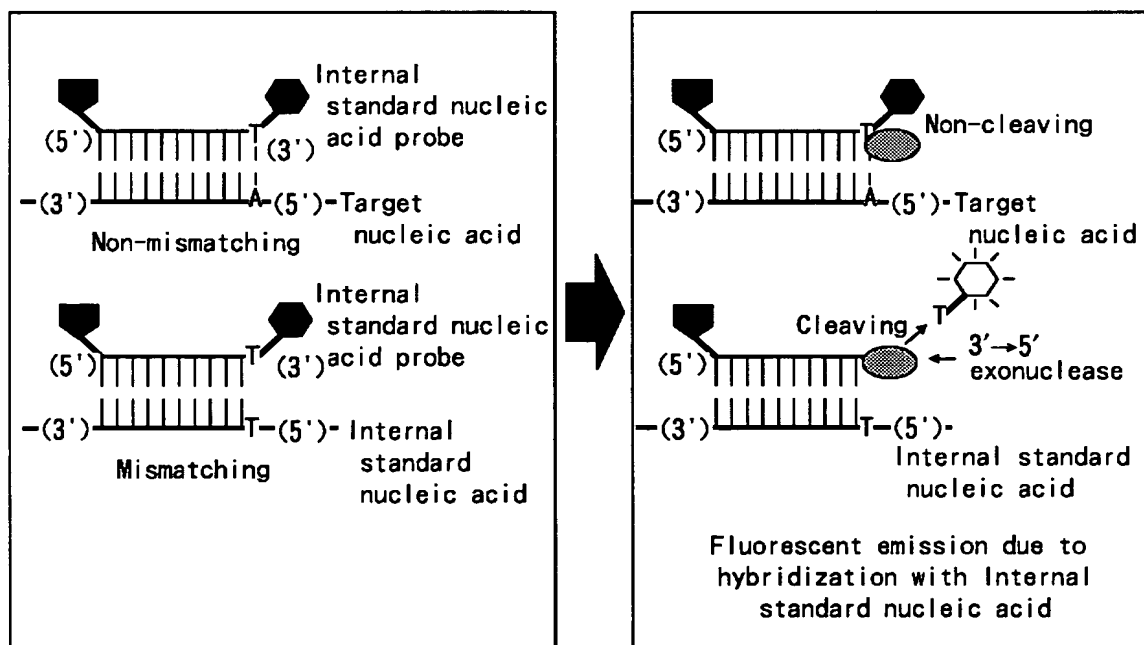


**FIG. 18**

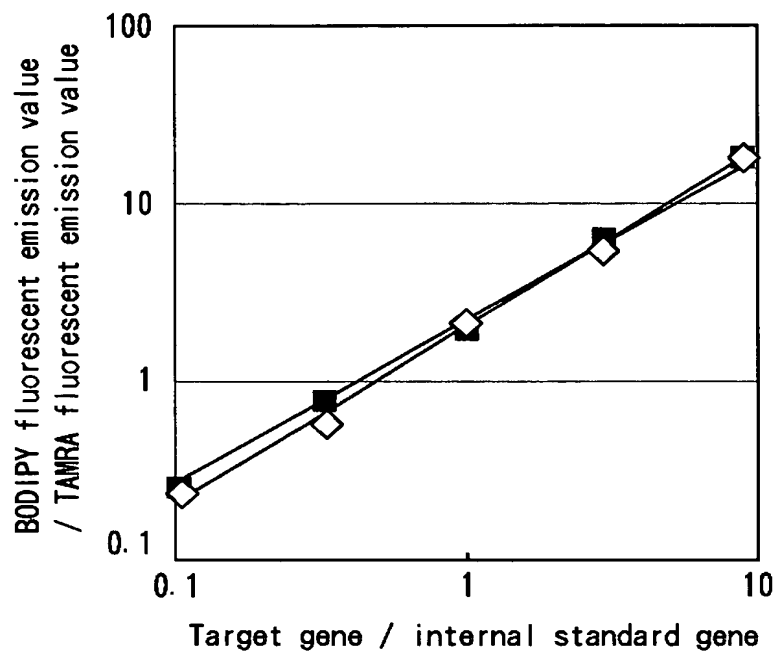
**A. In use of target nucleic acid probe**



**B. In use of Internal standard nucleic acid probe**



**FIG. 19**



**FIG. 20**

